# 5.11 Noise

Information in this analysis is derived from noise projections and analysis conducted by Cotton/Bridges/Associates for the General Plan. **Appendix G** includes detailed noise measurement worksheets.

The analysis focuses on noise impacts associated with the adoption and implementation of the proposed General Plan, adoption and implementation of the revised Zone Code and Subdivision Code, and adoption and implementation of the Magnolia Avenue Specific Plan, as these actions have the potential to affect noise levels in the Planning Area. The Citywide Design Guidelines and Sign Guidelines only address site planning, building design and community aesthetics and are thus not considered relevant to this analysis

## Environmental Setting

The City of Riverside is subject to typical urban noises, such as noise generated by traffic, heavy machinery and day-to-day outdoor activities. Planning Area noise is the cumulative effect of noise from transportation activities and stationary sources. Transportation noise refers to noise from automobile use, trucking, airport operations and rail operations. Non-transportation noise typically refers to noise from stationary sources such as commercial establishments, machinery, air conditioning systems, compressors and landscape maintenance equipment. Regardless of the type of noise, the noise levels are highest near the source and decrease with distance.

### Noise Standards

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perceptibility is subjective and the physical response to sound complicates the analysis to its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness." Sound pressure magnitude is measured and quantified using a logarithmic ratio of pressures, the scale of which gives the level of sound in decibels (dB). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human, frequency-dependent response, the A-weighting filter system is used to adjust measured sound levels and is expressed as dBA.

Noise consists of pitch, loudness and duration; therefore, it is difficult to describe noise with a single unit of measure. Federal and state agencies have established noise and land use compatibility guidelines that use averaging approaches to noise measurement. Two measurement scales commonly used in California are the Community Noise Equivalent Level (CNEL) and the day-night level ($L_{dn}$). To account for increased human sensitivity at night, the CNEL level includes a five dB penalty on noise during the 7:00 P.M. to 10:00 P.M. time period and a ten dB penalty on noise during the 10:00 P.M. to 7:00 A.M. time period. The $L_{dn}$ level includes only the ten dB weighting for late-night noise. These values are nearly identical for all but unusual noise sources.

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for residential buildings (Title 24, Part 2, California Code of Regulations). Title 24 establishes standards for interior room noise attributable to outside noise sources. Title 24 also specifies that acoustical studies be prepared whenever a residential building or structure is proposed to be located in an area where exterior CNEL or $L_{dn}$ levels are 60 dB or greater because of proximity to an existing or adopted freeway, expressway, parkway, major street, thoroughfare, rail line, rapid transit line or industrial noise source. The acoustical analysis must show that the building has been designed to limit intruding noise to an interior CNEL or $L_{dn}$ or 45 dB. **Table 5.11-1** outlines the interior and exterior noise standards set forth by Title 24 of the California Code of Regulations.

Table 5.11-1
State of California Interior and Exterior Noise Standards

| Land Use | Noise Standards[1] | |
|---|---|---|
| | Interior[2,3] | Exterior |
| Residential – Single-family, multi-family, duplex, mobile home | CNEL 45 dB | CNEL 65 dB[4] |
| Residential – Transient lodging, hotels, motels, nursing homes, hospitals | CNEL 45 dB | CNEL 65 dB[4] |
| Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc. | Leq(12) 45 dB(A) | --- |
| Schools | Leq(12) 45 dB(A) | Leq(12) 67 dB(A)[5] |
| General offices, reception, clerical, etc. | Leq(12) 50 dB(A) | --- |
| Bank, lobby, retail store, restaurant, etc. | Leq(12) 55 dB(A) | --- |
| Manufacturing, kitchen, warehousing, etc. | Leq(12) 65 dB(A) | --- |
| Parks, playgrounds | --- | CNEL 65 dB[5] |
| Golf courses, outdoor spectator sports, amusement parks | --- | CNEL 70 dB[5] |

Source: Title 24, California Code of Regulations.
Notes:
1. CNEL: Community Noise Equivalent Level.
   Leq(12): The A-weighted equivalent sound level averaged over a 12-hour period (usually the hours of operations).
2. Indoor standard with windows closed. Mechanical ventilation would be provided per UBC requirements to provide a habitable environment.
3. Indoor environment excluding bathrooms, toilets, closets and corridors.
4. Outdoor environment limited to rear yard of single-family homes, multi-family patios and balconies (with a depth of 6' or more) and common recreation areas.
5. Outdoor environment limited to playground areas, picnic area and other areas of frequent human use.

Enforcement of the noise control regulations established by Title 7 of the Riverside Municipal Code is the primary responsibility of the Code Compliance Division of the Public Works Department (Section 7.15.005 Administration and enforcement). Code Compliance will receive and investigate noise complaints alleged to be in violation of the Title 7 noise regulations. Additionally, noise complaints which are in violation of the State of California Penal or Vehicle Code will be enforced by the Riverside Police Department. This delegation of responsibilities allows consistent and continual enforcement of the noise standards.

## Sensitive Land Uses

Noise is particularly problematic when noise-sensitive land uses are affected. Noise-sensitive land uses are defined as uses where one would typically find activities that are interrupted by noise such as residential uses, schools, hospitals, churches, performing arts facilities and hotels and motels. The City of Riverside deems residential uses particularly noise sensitive because families and individuals expect to use time in the home for quiet rest. Variability in standards for noise sensitivity applies to different densities of residential development, specifically infill and mixed use developments; residential uses are considered the most noise sensitive.

## Existing Noise

Various locations within the City of Riverside were surveyed in 2003 to establish existing noise levels. These measurement sites were selected by the Planning Department staff to determine the impact from major sources of noise within the City. Measurements were conducted at several receptor locations, providing a basis for understanding the overall ambient noise environment of the City of Riverside. Once the measurements were taken, the data were converted to noise contour maps. The locations of noise measurements, known as receptor locations, are shown graphically in **Figure 5-19** (Noise Monitoring Locations). Noise contours are used to provide a general visualization of sound levels rather than absolute lines of demarcation.

Table A-1 in Appendix D details 24-hour and short-term noise measurements taken at locations throughout the City of Riverside. The maximum noise measurement of 95 Leq was taken in the front yard of the Mission Inn. The corner of Collett Avenue and Pierce Street experienced the highest short-term measurement at 82.9 Leq.

The monitoring indicated that the City of Riverside is primarily affected by roadway and freeway traffic noise, and to a lesser degree, industrial and commercial activities near noise-sensitive land uses. Mechanical equipment, outdoor recreational facilities, leaf blowers, train passings, helicopter and airplane flyovers and construction equipment are examples of sources that can contribute to neighborhood noise.

### Vehicular Traffic Noise

Noise from transportation activity is the primary component of the noise environment in the City of Riverside. Transportation noise is related to the major transportation corridors that traverse the community. As shown in **Figure 5-20** (2004 Roadway Noise), land uses adjacent to most City arterial roadways are within a CNEL 70 dB or higher noise contour, potentially exposing residents or visitors to excessive ambient noise levels. During peak travel hours, heavy traffic on Riverside's streets causes higher noise levels compared to noise levels during non-peak hours. The most heavily traveled roadways include Van Buren Boulevard, Alessandro Boulevard, Arlington Avenue, Tyler Street, La Sierra Avenue, Magnolia Avenue, University Avenue, and Martin Luther King Boulevard. These roadways have been designed specifically to carry large volumes, although long-established land use patterns have placed residential uses along some portions of these streets.

Figure 5-19
Noise Monitoring Locations
(b/w 8.5x11)

Figure 5-20
2004 Roadway Noise
(11x17 color)

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The primary noise generators in the City of Riverside include the SR-91, SR-60 and I-215 freeways. **Figure 5-21**, 2004 Freeway Noise, shows the noise contours along these major freeways traversing the City of Riverside. As shown on **Figure 5-21**, 60 CNEL noise contours can extend as far as 3,500 feet from the I-215 Freeway east of the SR-91/I-215 interchange. Large sections along the freeways are currently impacted by vehicular noise, including residential neighborhoods. Some neighborhoods closest to the freeway experience noise levels above CNEL 70 dB(A), the highest level considered "normally acceptable" by the City for residential uses.

## Freeway Noise Abatement Measures

To address freeway noise along long-established routes, the California Department of Transportation (Caltrans) has a priority program and a policy to put soundwalls adjacent to residential properties. Improvements to SR-91 that began in 1998 resulted in significant new sound walls and some relief from the noise associated with increasing regional traffic volumes.

## Railroad Noise

Both the Union Pacific Railroad (UPRR) and the Burlington Northern Santa Fe Railroad (BNSF) operate and own rail lines that traverse the City of Riverside, each carrying passenger and freight trains. These lines are also shared by Metrolink commuter rail and Amtrak passenger rail. Train noise, however intermittent, is a significant source of noise due to its magnitude and the associated vibration effects. Train noise, as shown in **Figure 5-22**, 2004 Railway Noise, incorporates the sounds of the locomotive engine, wheel-on-rail noise and train whistles near at-grade roadway crossings. It should be noted that these depictions represent train noise based on data collected in 2003 and do not account for train horn noise conditions that changed in year 2004 with the implementation new horn systems.

## Airport Noise

Another source of transportation noise involves air facilities in or near the Planning Area--Riverside Municipal Airport, March Air Reserve Base/March Inland Port (MARB/MIP) and Flabob Airport.

Riverside Municipal Airport, a general aviation airport, supports 100,000 annual flight operations, including corporate jet activity. The airport covers a total of 451 acres and includes two runways. Flabob Airport, a private recreational airport located in the unincorporated community of Rubidoux outside of the Planning Area, causes localized noise impacts in its immediate vicinity.

MARB/MIP is home to the 452nd Air Mobility Wing of the U.S. Air Force and will expand operations to include commercial cargo transfer activities during the early 21st century. Military and civilian aircraft utilizing MARB/MIP produce substantial levels of noise over the southeastern portion of the City and the southern Sphere of Influence although MARB/MIP is located outside of the Planning Area. Plans call for up to 21,000 civilian annual operations and over 40,000 military aircraft operations annually by the year 2010.

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Figure 5-21
2004 Freeway Noise
(11x17 color)

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Figure 5-22
2004 Railway Noise
(11x17 color)

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The City has worked as part of the March Joint Powers Authority (March JPA) to adjust air traffic patterns into and out of the MARB/MIP. Efforts have been made to minimize exposure of sensitive land uses to excessive noise in the busy airspace of Ontario and Los Angeles International Airports. Additionally, topographic conditions surrounding MARB/MIP also constrain flight patterns. Established flight patterns associated with MARB/MIP will most certainly continue into the future.

# Thresholds for Determining Level of Impact

For the purposes of this EIR, a significant impact will occur if development pursuant to the project will:

- Expose persons to or generate excessive or noise levels inconsistent with adopted land use/noise compatibility standards; or
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- Expose persons residing or working in the project area to excessive noise levels for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport; or
- Expose persons residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip.

# Environmental Impact

Development pursuant to Project policies and regulatory standards will result in the addition of up to 38,100 new dwelling units and 39,600,000 square feet of new non-residential construction over the 20-year horizon of the General Plan within the Planning Area. This new development within the Project Area will generate additional traffic that will increase noise levels along Project Area roadways, freeways and railways. Impacts are potentially significant.

Measurements used to create contour maps depicting the anticipated future extent of transportation noise are located in **Table 5.11-2**. A comparison of existing and future noise contours is shown in **Table 5.11-3**. These tables indicated that future noise levels along major streets in the City are projected to range from CNEL 64 dB(A) to CNEL 81 dB(A).

Table 5.11-2
Projected Noise Contour Measurements for Year 2025

| Roadway Segment | Distance to *Future* CNEL Contour Lines from Near Lane Centerline (feet) | | |
|---|---|---|---|
| | 60dB | 65dB | 70dB |
| **Adams Street** | | | |
| B/W Indiana Ave. and Magnolia Ave. | 296 | 137 | 64 |
| B/W Magnolia Ave. and Arlington Ave. | 304 | 141 | 65 |
| **Alessandro Boulevard** | | | |
| B/W Mission Grove Pkwy. and Northrop Dr. | 580 | 269 | 125 |
| B/W Mission Grove Pkwy. and Trautwein Rd. | 593 | 275 | 128 |
| B/W Sycamore Canyon Blvd. and Camino del Oro | 560 | 260 | 121 |
| B/W Trautwein Rd. and Via Vista Dr. | 753 | 349 | 162 |
| B/W Via Vista Dr. and Chicago Ave. | 664 | 308 | 143 |
| **Arlington Avenue** | | | |
| B/W Alessandro Blvd. and Victoria Ave. | 520 | 241 | 112 |
| B/W Magnolia Ave. and Streeter Ave. | 320 | 148 | 69 |
| B/W Monroe St. and Adams St. | 327 | 152 | 70 |
| B/W SR-91 Freeway and Magnolia Ave. | 336 | 156 | 72 |
| B/W Tyler St. and Norwood Ave. | 245 | 114 | 53 |
| B/W Van Buren Blvd. and Rutland Ave. | 304 | 141 | 66 |
| B/W Victoria Ave. and SR-91 Freeway | 471 | 219 | 102 |
| **Buchanan Street** | | | |
| B/W Magnolia Ave. and Indiana Ave. | 109 | 51 | 24 |
| B/W Magnolia Ave. and SR-91 Freeway | 232 | 108 | 50 |
| **California Avenue** | | | |
| B/W Adams St. and Jefferson St. | 275 | 128 | 59 |
| B/W Van Buren Blvd. and Jackson St. | 275 | 128 | 59 |
| **Central Avenue** | | | |
| B/W Chicago Ave. and Canyon Crest Dr. | 342 | 159 | 74 |
| B/W Glen Haven Ave. and Chicago Ave. | 299 | 139 | 64 |
| B/W Hillside Ave. and Streeter Ave. | 230 | 107 | 50 |
| B/W Lochmoor Dr. and Canyon Crest Dr. | 312 | 145 | 67 |
| B/W Victoria Ave. and SR-91 Freeway | 388 | 180 | 84 |
| B/W Streeter Ave. and Palm Ave. | 176 | 82 | 38 |
| B/W Victoria Ave. and Glen Haven Ave. | 419 | 195 | 90 |
| **Chicago Avenue** | | | |
| B/W Central Ave. and Alessandro Blvd. | 430 | 200 | 93 |
| B/W Martin Luther King Jr. Blvd. and Central Ave. | 475 | 221 | 102 |
| B/W Spruce St. and Columbia Ave. | 259 | 120 | 56 |
| B/W University Ave. and Martin Luther King Jr. Blvd. | 316 | 146 | 68 |
| **Indiana Avenue** | | | |
| B/W Harrison St. and Van Buren Blvd. | 190 | 88 | 41 |
| B/W Madison St. and Jefferson St. | 221 | 103 | 48 |
| B/W Monroe St. and Jackson St. | 170 | 79 | 37 |
| **Iowa Avenue** | | | |
| B/W Columbia Ave. and Spruce St. | 432 | 200 | 93 |
| B/W Third St. and Blaine Street/Spruce St. | 381 | 177 | 82 |
| B/W SR-60 Freeway and Third St./Blaine St. | 268 | 124 | 58 |
| **Jackson Street** | | | |
| B/W Magnolia Ave. and California Ave. | 187 | 87 | 40 |
| B/W Magnolia Ave. and Indiana Ave. | 201 | 93 | 43 |
| **Jefferson Street** | | | |

Table 5.11-2
Projected Noise Contour Measurements for Year 2025

| Roadway Segment | Distance to *Future* CNEL Contour Lines from Near Lane Centerline (feet) | | |
|---|---|---|---|
| | 60dB | 65dB | 70dB |
| B/W Magnolia Ave. and California Ave. | 143 | 67 | 31 |
| B/W Magnolia Ave. and Indiana Ave. | 144 | 67 | 31 |
| **Jurupa Avenue** | | | |
| B/W Palm Ave. and Grand Ave. | 208 | 97 | 45 |
| B/W Streeter Ave. and Fremont St. | 198 | 92 | 43 |
| **La Sierra Avenue** | | | |
| B/W Cypress Ave. and Arlington Ave. | 330 | 153 | 71 |
| B/W Magnolia Ave. and Collett Ave | 376 | 175 | 81 |
| B/W Magnolia Ave. and SR-91 Freeway | 325 | 151 | 70 |
| B/W Pierce St. and Gramercy Pl. | 453 | 210 | 98 |
| B/W Victoria Ave. and Arizona Ave. | 406 | 189 | 88 |
| **Lincoln Avenue** | | | |
| B/W Adams St. and Jefferson St. | 334 | 155 | 72 |
| B/W Jackson St. and Monroe St. | 292 | 135 | 63 |
| **Madison Street** | | | |
| B/W Magnolia Ave. and Arlington Ave. | 269 | 125 | 58 |
| B/W Magnolia Ave. and Indiana Ave. | 262 | 122 | 56 |
| **Magnolia Avenue** | | | |
| B/W Monroe St. and Jackson St. | 327 | 152 | 70 |
| B/W Central Ave. and Jurupa Ave. | 340 | 158 | 73 |
| B/W La Sierra Ave. and SR-91 Freeway | 438 | 203 | 94 |
| B/W Tyler St. and Van Buren Blvd. | 409 | 190 | 88 |
| B/W La Sierra Ave. and Tyler St. | 510 | 237 | 110 |
| **Main Street** | | | |
| B/W Colombia Ave. and SR-60 Freeway | 309 | 143 | 67 |
| **Market Street** | | | |
| B/W 1st St. and SR-60 Freeway | 270 | 125 | 58 |
| B/W Mission Inn Ave. and 14th St. | 290 | 135 | 63 |
| **Martin Luther King Jr. Boulevard** | | | |
| B/W Canyon Crest Dr. and Chicago Ave. | 435 | 202 | 94 |
| B/W Chicago Ave. and Iowa Ave. | 395 | 183 | 85 |
| **Monroe Street** | | | |
| B/W Magnolia Ave. and California Ave. | 127 | 59 | 27 |
| B/W Magnolia Ave. and Indiana Ave. | 187 | 87 | 40 |
| **Pierce Street** | | | |
| B/W Magnolia Ave. and Indiana Ave. | 147 | 68 | 32 |
| B/W Magnolia Ave. and Riverwalk Pkwy. | 257 | 119 | 55 |
| B/W Riverwalk Pkwy. and La Sierra Ave. | 169 | 79 | 36 |
| **Riverwalk Pkwy** | | | |
| B/W Pierce St. and La Sierra Ave. | 254 | 118 | 55 |
| **Spruce Street** | | | |
| B/W Chicago Ave. and Iowa Ave. | 169 | 79 | 37 |
| B/W Chicago Ave. and Kansas Ave. | 146 | 68 | 32 |
| B/W Kansas Ave. and Orange Ave. | 126 | 59 | 27 |
| **Trautwein Road** | | | |
| B/W John F. Kennedy Dr. and Alessandro Blvd. | 646 | 300 | 139 |
| B/W Orange Terrace Pkwy. and John F. Kennedy Dr. | 660 | 306 | 142 |
| **Tyler Street** | | | |
| B/W Indiana Ave. and Victoria Ave. | 119 | 55 | 26 |
| B/W Magnolia Ave. and California Ave. | 546 | 254 | 118 |

Table 5.11-2
Projected Noise Contour Measurements for Year 2025

| Roadway Segment | Distance to *Future* CNEL Contour Lines from Near Lane Centerline (feet) | | |
|---|---|---|---|
| | 60dB | 65dB | 70dB |
| B/W Magnolia Ave. and Indiana Ave. | 514 | 239 | 111 |
| B/W Wells Ave. and Cypress Ave. | 238 | 110 | 51 |
| **University Avenue** | | | |
| B/W Chicago Ave. and Iowa Ave. | 265 | 123 | 57 |
| B/W Kansas Ave. and Chicago Ave. | 276 | 128 | 59 |
| B/W Market St. and Lime Ave. | 187 | 87 | 40 |
| B/W Market St. and Redwood Dr. | 143 | 66 | 31 |
| **Van Buren Boulevard** | | | |
| B/W Arlington Ave. and Central Ave. | 566 | 263 | 122 |
| B/W Barton Rd. and Orange Terrace Pkwy. | 451 | 209 | 97 |
| B/W Central Ave. and Jurupa Ave. | 571 | 265 | 123 |
| B/W Cypress Ave. and Wells Ave. | 435 | 202 | 94 |
| B/W Indiana Ave. and Magnolia Ave. | 422 | 196 | 91 |
| B/W Magnolia Ave. and California Ave. | 350 | 163 | 75 |
| B/W Mockingbird Canyon Rd. and Washington St. | 383 | 178 | 83 |
| N/ Jurupa Ave. | 649 | 301 | 140 |
| B/W Victoria Ave. and Dufferin Blvd. | 541 | 251 | 117 |
| B/W Victoria Ave. and Indiana Ave. | 456 | 211 | 98 |
| B/W Wood Rd. and Chicago Ave. | 521 | 242 | 112 |
| **Victoria Avenue** | | | |
| B/W Adams St. and Jefferson St. | 98 | 46 | 21 |
| B/W Central Ave. and Arlington Ave. | 180 | 84 | 39 |
| B/W Central Ave. and Cridge St. | 187 | 87 | 40 |
| B/W Harrison and Tyler St. | 132 | 61 | 29 |
| B/W Madison Ave. and Washington St. | 111 | 52 | 24 |
| B/W Jackson St. and Monroe St. | 85 | 39 | 18 |
| **Washington Street** | | | |
| B/W Bradley St. and Overlook Pkwy. | 277 | 128 | 60 |
| B/W Overlook Pkwy. and Victoria Ave. | 286 | 133 | 62 |
| **Watkins Drive** | | | |
| B/W Mount Vernon Ave. and SR-60 Freeway | 261 | 121 | 56 |

Source: CBA, 2004.
B/W = Between

Table 5.11-3
Existing and Future Noise Contour Comparison

| Roadway Segment | CNEL at Property Line | | |
|---|---|---|---|
| | Baseline Year 2003 | Year 2025 | Difference |
| **Adams Street** | | | |
| B/W Indiana Ave. and Magnolia Ave. | 75 | 75 | 0 |
| B/W Magnolia Ave. and Arlington Ave. | 72 | 75 | 3 |
| **Alessandro Boulevard** | | | |
| B/W Mission Grove Pkwy. and Northrop Dr. | 76 | 78 | 2 |
| B/W Mission Grove Pkwy. and Trautwein Rd. | 76 | 78 | 2 |
| B/W Sycamore Canyon Blvd. and Camino del Oro | 77 | 79 | 2 |
| B/W Trautwein Rd. and Via Vista Dr. | 78 | 81 | 3 |
| B/W Via Vista Dr. and Chicago Ave. | 78 | 80 | 2 |
| **Arlington Avenue** | | | |
| B/W Alessandro Blvd. and Victoria Ave. | 76 | 79 | 2 |
| B/W Magnolia Ave. and Streeter Ave. | 74 | 76 | 2 |
| B/W Monroe St. and Adams St. | 75 | 76 | 1 |
| B/W SR-91 Freeway and Magnolia Ave. | 74 | 76 | 2 |
| B/W Tyler St. and Norwood Ave. | 74 | 74 | 0 |
| B/W Van Buren Blvd. and Rutland Ave. | 75 | 75 | 0 |
| B/W Victoria Ave. and SR-91 Freeway | 75 | 78 | 3 |
| **Buchanan Street** | | | |
| B/W Magnolia Ave. and Indiana Ave. | 68 | 71 | 3 |
| B/W Magnolia Ave. and SR-91 Freeway | 72 | 76 | 4 |
| **California Avenue** | | | |
| B/W Adams St. and Jefferson St. | 73 | 75 | 2 |
| B/W Van Buren Blvd. and Jackson St. | 73 | 75 | 2 |
| **Central Avenue** | | | |
| B/W Chicago Ave. and Canyon Crest Dr. | 74 | 76 | 2 |
| B/W Glen Haven Ave. and Chicago Ave. | 75 | 75 | 0 |
| B/W Hillside Ave. and Streeter Ave. | 72 | 74 | 2 |
| B/W Lochmoor Dr. and Canyon Crest Dr. | 74 | 76 | 2 |
| B/W Victoria Ave. and SR-91 Freeway | 75 | 77 | 2 |
| B/W Streeter Ave. and Palm Ave. | 71 | 72 | 1 |
| B/W Victoria Ave. and Glen Haven Ave. | 75 | 77 | 2 |
| **Chicago Avenue** | | | |
| B/W Central Ave. and Alessandro Blvd. | 75 | 78 | 3 |
| B/W Martin Luther King Jr. Blvd. and Central Ave. | 74 | 78 | 4 |
| B/W Spruce St. and Columbia Ave. | 72 | 74 | 2 |
| B/W University Ave. and Martin Luther King Jr. Blvd. | 74 | 76 | 2 |
| **Indiana Avenue** | | | |
| B/W Harrison St. and Van Buren Blvd. | 70 | 72 | 2 |
| B/W Madison St. and Jefferson St. | 72 | 73 | 1 |
| B/W Monroe St. and Jackson St. | 71 | 72 | 1 |
| **Iowa Avenue** | | | |
| B/W Columbia Ave. and Spruce St. | 74 | 78 | 4 |
| B/W Third St. and Blaine Street/Spruce St. | 74 | 77 | 3 |
| B/W SR-60 Freeway and Third St./Blaine St. | 73 | 75 | 1 |
| **Jackson Street** | | | |
| B/W Magnolia Ave. and California Ave. | 71 | 72 | 1 |
| B/W Magnolia Ave. and Indiana Ave. | 71 | 73 | 2 |
| **Jefferson Street** | | | |
| B/W Magnolia Ave. and California Ave. | 72 | 72 | 0 |

Table 5.11-3
Existing and Future Noise Contour Comparison

| Roadway Segment | CNEL at Property Line | | |
|---|---|---|---|
| | Baseline Year 2003 | Year 2025 | Difference |
| B/W Magnolia Ave. and Indiana Ave. | 71 | 72 | 1 |
| **Jurupa Avenue** | | | |
| B/W Palm Ave. and Grand Ave. | 74 | 75 | 1 |
| B/W Streeter Ave. and Fremont St. | 73 | 75 | 2 |
| **La Sierra Avenue** | | | |
| B/W Cypress Ave. and Arlington Ave. | 72 | 76 | 4 |
| B/W Magnolia Ave. and Collett Ave. | 74 | 77 | 3 |
| B/W Magnolia Ave. and SR-91 Freeway | 75 | 76 | 1 |
| B/W Pierce St. and Gramercy Pl. | 74 | 78 | 4 |
| B/W Victoria Ave. and Arizona Ave. | 74 | 77 | 3 |
| **Lincoln Avenue** | | | |
| B/W Adams St. and Jefferson St. | 74 | 76 | 2 |
| B/W Jackson St. and Monroe St. | 75 | 75 | 0 |
| **Madison Street** | | | |
| B/W Magnolia Ave. and Arlington Ave. | 72 | 75 | 3 |
| B/W Magnolia Ave. and Indiana Ave. | 74 | 74 | 0 |
| **Magnolia Avenue** | | | |
| B/W Monroe St. and Jackson St. | 75 | 76 | 1 |
| B/W Central Ave. and Jurupa Ave. | 75 | 76 | 1 |
| B/W La Sierra Ave. and SR-91 Freeway | 76 | 78 | 2 |
| B/W Tyler St. and Van Buren Blvd. | 75 | 77 | 2 |
| B/W La Sierra Ave. and Tyler St. | 76 | 77 | 1 |
| **Main Street** | | | |
| B/W Colombia Ave. and SR-60 Freeway | 74 | 75 | 1 |
| **Market Street** | | | |
| B/W 1st St. and SR-60 Freeway | 73 | 75 | 2 |
| B/W Mission Inn Ave. and 14th St. | 75 | 75 | 0 |
| **Martin Luther King Jr. Boulevard** | | | |
| B/W Canyon Crest Dr. and Chicago Ave. | 75 | 78 | 3 |
| B/W Chicago Ave. and Iowa Ave. | 75 | 77 | 2 |
| **Monroe Street** | | | |
| B/W Magnolia Ave. and California Ave. | 71 | 72 | 1 |
| B/W Magnolia Ave. and Indiana Ave. | 74 | 74 | 0 |
| **Pierce Street** | | | |
| B/W Magnolia Ave. and Indiana Ave. | 72 | 73 | 1 |
| B/W Magnolia Ave. and Riverwalk Pkwy. | 73 | 74 | 1 |
| B/W Riverwalk Pkwy. and La Sierra Ave. | 72 | 72 | 0 |
| **Riverwalk Pkwy** | | | |
| B/W Collett Ave. and Pierce St. | 74 | 74 | 0 |
| **Spruce Street** | | | |
| B/W Chicago Ave. and Iowa Ave. | 72 | 72 | 0 |
| B/W Chicago Ave. and Kansas Ave. | 67 | 71 | 4 |
| B/W Kansas Ave. and Orange Ave. | 64 | 72 | 8 |
| **Trautwein Road** | | | |
| B/W John F. Kennedy Dr. and Alessandro Blvd. | 77 | 80 | 3 |
| B/W Orange Terrace Pkwy. and John F. Kennedy Dr. | 76 | 80 | 4 |
| **Tyler Street** | | | |
| B/W Indiana Ave. and Victoria Ave. | 70 | 71 | 1 |
| B/W Magnolia Ave. and California Ave. | 73 | 78 | 5 |
| B/W Magnolia Ave. and Indiana Ave. | 75 | 78 | 3 |
| B/W Wells Ave. and Cypress Ave. | 73 | 76 | 3 |

Table 5.11-3
Existing and Future Noise Contour Comparison

| Roadway Segment | CNEL at Property Line | | |
|---|---|---|---|
| | Baseline Year 2003 | Year 2025 | Difference |
| **University Avenue** | | | |
| B/W Chicago Ave. and Iowa Ave. | 74 | 74 | 0 |
| B/W Kansas Ave. and Chicago Ave. | 75 | 75 | 0 |
| B/W Market St. and Lime Ave. | 72 | 72 | 0 |
| B/W Market St. and Redwood Dr. | 70 | 70 | 0 |
| **Van Buren Boulevard** | | | |
| B/W Arlington Ave. and Central Ave. | 77 | 79 | 2 |
| B/W Barton Rd. and Orange Terrace Pkwy. | 75 | 78 | 3 |
| B/W Central Ave. and Jurupa Ave. | 78 | 79 | 1 |
| B/W Cypress Ave. and Wells Ave. | 75 | 78 | 3 |
| B/W Indiana Ave. and Magnolia Ave. | 75 | 77 | 2 |
| B/W Magnolia Ave. and California Ave. | 74 | 76 | 2 |
| B/W Mockingbird Canyon Rd. and Washington St. | 75 | 77 | 2 |
| N/ Jurupa Ave. | 78 | 80 | 2 |
| B/W Victoria Ave. and Dufferin Blvd. | 74 | 79 | 5 |
| B/W Victoria Ave. and Indiana Ave. | 75 | 78 | 3 |
| B/W Wood Rd. and Chicago Ave. | 77 | 79 | 2 |
| **Victoria Avenue** | | | |
| B/W Adams St. and Jefferson St. | 71 | 70 | **-1** |
| B/W Central Ave. and Arlington Ave. | 74 | 74 | 0 |
| B/W Central Ave. and Cridge St. | 73 | 74 | 1 |
| B/W Harrison and Tyler St. | 71 | 72 | 1 |
| B/W Madison Ave. and Washington St. | 73 | 71 | **-2** |
| B/W Jackson St. and Monroe St. | 69 | 69 | 0 |
| **Washington Street** | | | |
| B/W Bradley St. and Overlook Pkwy. | 74 | 77 | 3 |
| B/W Overlook Pkwy. and Victoria Ave. | 73 | 75 | 2 |
| **Watkins Drive** | | | |
| B/W Mount Vernon Ave. and SR-60 Freeway | 73 | 76 | 3 |

Source: CBA, 2004.
B/W = Between

The Draft General Plan establishes the noise/land use compatibility guidelines set forth in **Figure 5-23** (Noise/Land Use Noise Compatibility Criteria) for outdoor noise. This figure provides a land use compatibility matrix based on noise generation and sensitivity.

According to **Figure 5-23,** a future project will be considered compatible with the noise environment if the noise level generated by the project falls within the "normally acceptable" and "conditionally acceptable" zones. If the anticipated noise level of a proposed project falls into "normally acceptable," typically no mitigation is needed. If a proposed project's anticipated noise level is in a "conditionally acceptable" area, minor mitigation may be required to meet City and State Title 24 noise standards. If the noise level of a proposed project falls within a "normally unacceptable" area, substantial mitigation is likely necessary to meet City noise standards. Project specific mitigation could include construction of noise barriers, and/or the inclusion of substantial building sound insulation. If noise levels of a proposed project fall at or above "clearly unacceptable" level, the project will most likely be clearly incompatible with the noise environment and new construction of the particular land use should not be undertaken.

**Figure 5-24** (2025 Roadway Noise) depicts anticipated buildout noise contours associated with vehicular noise on arterials within the Planning Area. In some portions of the community, the 70 dB noise contour could expand as much as 750 feet, although 20 to 80 feet is more typical for most roadway segments.

Future noise contours from freeway sources are shown in **Figure 5-25** (2025 Freeway Noise) have been projected based on information about existing and projected land use development and transportation activity. In some portions of the community, the 60 dB noise contour could expand to as far as 4,000 feet from freeway centerlines (assuming no noise-attenuating features, such as sound walls).

Future noise contours resulting from train passings are shown in **Figure 5-26** (2025 Railway Noise). In some portions of the community, the 60 dB noise contour could expand to more than 5,000 feet from particular rail lines. The analysis does not account for future separated grade crossings or other noise-attenuating features.

The potential exists that "conditionally acceptable" and "normally unacceptable" zones resulting from roadway, freeway, and/or railway traffic may overlay areas of proposed new development, meaning that new development could conflict with adopted noise/land use compatibility standards. This is considered a potentially significant impact.

Figure 5-23
Noise/Land Use Compatibility Criteria
(b/w 8.5x11)

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Figure 5-24
2025 Roadway Noise
(11X17 color)

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Figure 5-25
2025 Freeway Noise
(11X17 color)

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Figure 5-26
2025 Railway Noise
(11X17 color)

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## Groundborne Noise

Development pursuant to Project policies and regulatory standards will result in the addition of up to 38,100 new dwelling units and 39,600,000 square feet of new non-residential construction over the 20-year horizon of the General Plan within the Planning Area. Implementation of the Project could expose persons to excessive groundborne noise levels. Particular problems could arise in cases where noise-producing uses are located immediately adjacent to sensitive uses, such as business park areas near residences or schools. Mixed-use projects also present unique concerns, such as when restaurants with nighttime entertainment are located close to residential units. In addition, construction related activities will be short-term sources of groundborne noise that could affect occupants of neighboring uses. These are potentially significant impacts.

## Ambient Noise Levels

### Permanent

Development pursuant to Project policies and regulatory standards will result in the addition of up to 38,100 new dwelling units and 39,600,000 square feet of new non-residential construction over the 20-year horizon of the General Plan within the Planning Area. New development within the Project area allowed by the proposed General Plan will increase permanent ambient noise levels within the City of Riverside as indicated in **Table 5.11-3**. This is a potentially significant impact.

### Temporary

Construction noise typically involves the loudest common urban noise events associated with building demolition, grading, construction, large diesel engines, truck deliveries and hauling. Table A-2 in Appendix D illustrates typical noise levels associated with operation of construction equipment at a distance of 50 feet. Construction activity, although temporary at any given location, can be substantially disruptive to adjacent uses during the construction period. Future development projects will result in construction noise. Noise from specific future development projects in the Planning Area will be examined on a project-by-project basis.

The following policies related to noise standards for construction-related, point source and transportation-related noise sources will be implemented to substantially lessen noise impacts on new and existing developments.

Policy N-1.1: Continue to enforce noise abatement and control measures particularly within residential neighborhoods.

Policy N-1.2: Require the inclusion of noise-reducing design features in development consistent with standards in Figure 5-23 (Noise/Land Use Compatibility Criteria), Title 24 California Code of Regulations and Title 7 of the Municipal Code.

Policy N-1.3: Enforce the City of Riverside Noise Control Code to ensure that stationary noise and noise emanating from construction activities, private developments/residences and special events are minimized.

Policy N-1.4: Incorporate noise considerations into the site plan review process, particularly with regard to parking and loading areas, ingress/egress points and refuse collection areas.

Policy N-1-5: Avoid locating noise-sensitive land uses in existing and anticipated noise-impacted areas.

Policy N-1.6: Educate the public about City noise regulations.

Policy N-1.7: Evaluate noise impacts from roadway improvement projects by using the City's Acoustical Assessment Procedure.

Policy N-1.8: Continue to consider noise concerns in evaluating all proposed development decisions and roadway projects.

Policy N-4.1: Ensure that noise impacts generated by vehicular sources are minimized through the use of noise reduction features (e.g., earthen berms, landscaped walls, lowered streets, improved technology).

Policy N-4.2: Investigate and pursue innovative approaches to reducing noise from railroad sources.

Policy N-4.3: Identify and aggressively pursue funding sources to provide grade separations and sound walls along train routes as noise reduction measures.

Policy N-4.4: Prioritize locations for implementing road/rail grade separations.

Policy N-4.5: Use speed limit controls on local streets as appropriate to minimize vehicle traffic noise.

Policy CCM-2.9: Design all street improvement projects in a comprehensive fashion to include consideration of street trees, pedestrian walkways, bicycle lanes, equestrian pathways, signing, lighting, noise and air quality wherever any of these factors are applicable.

Policy CCM-6.2: Encourage the use of telecommunications by Riverside residents, employees and students as a means to reduce air and noise pollution generated by traffic.

Policy CCM-11.7: Ensure environmental impacts such as noise, air quality, pollution, traffic congestion and public safety hazards associated with continued operation of local airports are mitigated to the extent practicable.

Policy CCM-12.3: Aggressively pursue grade-separated rail crossings to alleviate traffic congestion and associated air quality and noise impacts.

The degree to which future individual developments will be able to achieve noise reduction within areas where exterior noise levels are in excess of 70dB(A) cannot be fully assessed. Noise sensitive development could, under some conditions, be located in areas where noise/land use conflicts cannot be fully mitigated with the measures cited above. Impact is potentially significant.

The policies listed above will reduce most project-related impacts below a level of significance. Individual development projects will continue to comply with existing City standards and practices regarding noise/land use compatibility review and the control of stationary noise sources. These standards and practices include:

- Implement CEQA when reviewing future development projects to evaluate potential noise related impacts.

- Preparation of an acoustical study for development projects in noise exposure areas defined as a "conditionally acceptable" zone in the General Plan Noise Element and for all proposed residential projects within the vicinity of existing and proposed commercial and industrial areas; incorporation of binding mitigation measures to reduce both exterior and internal noise exposure.

- Compliance with the California Noise Insulation Standards (Title 24) to ensure acceptable interior noise levels. Compliance may require the inclusion of significant architectural and mechanical improvements, including, but not limited to the use of air conditioning and/or mechanical ventilation systems, double paned glass, solid core exterior doors, approved door and window frames and seals, and other measures.

- Enforcement of the City's Noise Control Code (Title 7, Riverside Municipal Code) relative to noise associated with nuisance, stationary, and construction-related sources.

- Continued participation in Caltrans' soundwall installation program. Future noise level increases near freeways will be somewhat mitigated with the addition of soundwalls.

The degree to which these measures will achieve acceptable noise levels on a project-by-project basis cannot be measured. While compliance with interior noise levels can be assured through compliance with Title 24 Noise Insulation Standards, compliance with acceptable exterior noise standards may not always be possible. Therefore, impacts are still considered significant and mitigation is required.

## Airport/Land Use Compatibility

Development pursuant to Project policies and regulatory standards will result in the addition of up to 38,100 new dwelling units and 39,600,000 square feet of new non-residential

construction over the 20 year horizon of the General Plan within the Planning Area. The Land Use Policy Map (**Figure 3-3** in Section 3.0 (Project Description)) will restrict intensive new uses within airport-influenced areas along with consistent zoning regulations (the AI Airport Overlay District). Development controls include limiting development within areas subject to high noise levels and limiting the intensity and height of development within aircraft hazard zones. These controls are consistent with the Riverside County Airport Land Use Compatibility Plan, adopted by the Riverside County Airport Land Use Commission, which designates zones of airport-influenced areas for every airport in Riverside County and provided a series of policies and compatibility criteria to ensure that both aviation uses and surrounding areas may continue.

**Figure 5-27** (2025 Riverside and Flabob Airport Noise) focuses on noise impacts projected for these small facilities by the Riverside County Airport Land Use Commission.

In 2004, March JPA initiated the March Joint Land Use Study (JLUS) for the joint use March Air Reserve Base/March Inland Port. The JLUS is proposed to include a policy component and a regulatory component in the form of an overlay zoning district which will include areas within the Planning Area. The JLUS is expected to be completed in mid-2005. **Figure 5-28** (Future MARB/MIP Noise) indicates future noise levels associated with March Air Reserve Base/March Inland Port as projected in a 1998 Air Installation Compatible Use Zone Study completed by the Department of the Air Force.

**Conclusion**

The Project will comply with all associated airport plans and will not create interference with the operations of private airports in the Project area. In addition, compliance with the policies established by the proposed General Plan detailed below, as well as the Airport Influence zone of the Zone Code, will reduce impacts to less than significant levels. Therefore, implementation of the Project will not result in significant impacts related to airport/land use compatibility.

Policy N-2.1: Ensure that new development can be made compatible with the noise environment by using noise/land use compatibility standards and the airport noise contour maps as guides to future planning and development decisions.

Policy N-2.2: Avoid placing noise-sensitive land uses within the high noise contour impact areas for Riverside Municipal Airport and Flabob Airport.

Policy N-2.3: Support efforts of the Federal Aviation Administration and other responsible agencies to require the development of quieter aircraft.

Policy N-2.4: Work with the Federal Aviation Administration and neighboring airport authorities to minimize the noise impacts of air routes through residential neighborhoods within the City.

Policy N-2.5: Utilize the Airport Protection Overlay Zone, as appropriate, to advise landowners of special noise considerations associated with their development.

Figure 5-27
2025 Riverside and Flabob Airport Noise
11x17, color

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Figure 5-28, Future MARB/MIP Noise
11x17, color

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Policy N-3.1: Avoid placing noise-sensitive land uses within the noise contour impact areas for March Air Reserve Base/March Inland Cargo Port.

Policy N-3.2: Work with the Riverside County Airport Land Use Commission, March Joint Powers Authority and other airports in the vicinity of the City to develop noise/land use guidelines consistent with City land use plans.

Policy N-3.3: Carefully consider planned future operations of the March Air Reserve Base and March Inland Cargo Port in land use decisions for properties located within the airport-influenced area.

Policy N-3.4: Support the noise/land use policies for the area adjacent to the March Air Reserve Base/March Inland Cargo Port through the adoption of the March JLUS/Airport Land Use Compatibility Plan.

Policy LU-26.2: Strictly limit the encroachment of uses that potentially pose a threat to continued airport operations, including intensification of residential and/or commercial facilities within identified airport safety zones and areas already impacted by airport noise.

Policy LU-28.1: Reduce the impacts of aviation-related uses to the extent possible.

Compliance with existing City standards and regulations as well as policies from the General Plan will reduce program impacts to a less than significant level. No mitigation is required.

# Mitigation Measures

The Project could facilitate development along regional freeways and major arterials where regionally generated traffic is a substantial source of future noise. The degree to which Project features and policies, along with ongoing City standards and practices will achieve acceptable noise levels on a project-by-project basis cannot be measured. Although acceptable interior noise levels can be achieved with full compliance with Title 24 Noise Insulation Standard, compliance with acceptable exterior noise levels is less certain. While the City will require acoustical studies in potentially affected locations, imposition of these programmatic features cannot predict precisely the degree to which exterior noise levels will be reduced.

# Level of Impact after Mitigation

The degree to which Project features and ongoing City standards and practices will achieve noise/land use compatibility objectives cannot be measured. Thus, impact is significant and unavoidable on an individual project basis.

## References

City of Riverside. Airport Master Plan Final Technical Report for Riverside Airport. Approved by City on November 16, 1999.

Noise Existing Conditions Report. Cotton/Bridges/Associates, December 2003.

California Noise Insulation Standards (Title 24 of the Health and Safety Code).

City of Riverside Noise Control Code (Title 7 of the Municipal Code).

Air Installation Compatible Use Zone (AICUZ) Study. March Air Reserve Base United States Air Force. 1998.

March Joint Powers Authority. General Plan for the March Joint Powers Authority. September 15, 1999.

Riverside County Airport Land Use Compatibility Plan Policy Document. Riverside County Land Use Commission. February 2004.